MD/Special Training in Research: Enhancing medical education through research

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Scientific research

Somewhere, something incredible is waiting to be known.

— Carl Sagan —

If I have seen further it is by standing on the shoulders of Giants.

Isaac Newton

It amounts to a truism to say that progress in the practical arts of medicine in any of its branches, whether preventive or curative, only comes from the growth of accurate knowledge as it accumulates in the laboratories and studies of the various sciences.

Walter Fletcher

First scientist to clone HIV and map its genes

“It adds to the joy of discovery to know that your work may make a difference in people’s lives.”

Flossie Wong-Staal
Incorporating research into medical training

- Undergraduate—MD/Special Training in Research
- MD/PhD
- CIP
What is MD/STIR?
- Program that oversees and formally recognizes research by undergraduate medical education (UME) students
- Annotation on diploma and transcript
  - “MD with Special Training in Research”
- No risk to enroll:
  - Students that do not complete the program (for whatever reason) are not recorded
MD/STIR Committee oversees program

- Adetola Adesida, PhD—Surgery
- Oana Caluseriu, MD—Medical Genetics
- Sandra Cockfield, MD—Division of nephrology, Medicine
- David Eisenstat, MD—Pediatrics/Medical Genetics/Oncology
- Michelle Graham, MD—Division of cardiology, Medicine
- Ing Swie Goping, PhD, Chair of Committee—Biochemistry
- Kieran Halloran, MD—Division of pulmonary medicine, Medicine
- Lisa Hartling, PhD—Pediatrics
- Jacob Jaremko, MD—Radiology & Diagnostic Imaging
- Sanjay Kalra, MD—Division of neurology, Medicine
- Paul LaPointe, PhD—Cell Biology
- Jean-Michel Le Melledo, MD/MSc—Psychiatry
- Silvia Pagliardini, PhD—Physiology
- Elena Posse de Chaves, PhD—Pharmacology
- Michael Schultz, PhD—Biochemistry
- Hanne Ostergaard, PhD, Professor—Associate Dean Grad Studies
- Tracey Hillier, MD, Associate Professor—Associate Dean MD Program
- Karolin Klement, Virginia Goetz—Student Representatives
- Nicole Kosturic—Program Coordinator
Where can you find information on STIR?

https://www.ualberta.ca/medicine/programs/mdstir

Faculty of Medicine & Dentistry

ABOUT US PROGRAMS & EDUCATION DEPARTMENTS RESEARCH GIVING ALUMNI

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MD with Special Training in Research

Overview:
The Faculty of Medicine & Dentistry (FoMD) at the University of Alberta offers the MD with Special Training in Research Program (MD/STIR) to undergraduate medical education (UME) students. This program is designed for those students who wish to participate in research above what is offered within the UME curriculum. UME students join a research team and directly engage in biomedical research while concurrently fulfilling MD/STIR requirements (application, presentations, reporting, defense). Students that successfully complete their MD degree and all requirements of the MD/STIR program receive the designation of “Special Training in Research” on their degree parchment and transcript.
Step 1. Identify a research supervisor

- Supervisors direct MD/STIR student research activities and in some cases contribute to stipend support.
  - Full-time academic member of the University of Alberta (UofA).
  - It is extremely important that the supervisor has a strong research program and is willing to put in the time to guide the student through the program.
  - Strong supervisors usually have:
    - peer-reviewed research grant support
    - successfully supervised research trainees
    - published with their trainees (typically as first- or last-author)
Step 2. Apply for summer stipend support

- All MD/STIR students must receive summer student stipend support
- ALL students should apply for an Alberta Innovates (AI) summer studentship award.
  - Application deadline is usually, but not always, in February.
- Students should also apply to any other studentship stipend competition
Step 3. Apply to the MD/STIR program

- The application is due by **4pm on March 2, 2020** to Nicole Kosturic, nkosturi@ualberta.ca
- The applications are assessed by members of the MD Research Committee.
- The student will receive feedback and may be given the opportunity to submit revisions.
- Respect the deadline and time of the Reviewers
Step 3. Proposal

• The student is responsible for writing the research proposal

*The proposed research must be hypothesis-driven and requires collection of primary data.*

• The supervisor should actively guide the student during the writing of the proposal
  – If not, the student may need to reconsider whether this is the best environment for a successful MD/STIR

• The student should start writing the proposal in January

• The reviewers will assess the scientific merit and feasibility of the project
Step 3. Ethics

• The student MUST attach documentation that all ethics approval is in place or pending or the application will be denied
• If the supervisor does not have or is not actively applying for ethics approval for the STIR project, the student should re-consider whether this is the best environment for a successful MD/STIR
• Lack of timely ethics approval is a major reason for student withdrawal from the program
Step 3. CVs

• Student CV
  – No previous research experience is required

• Supervisor CV
  – The reviewers will assess the supervisor with respect to (i) peer-reviewed research grant support, (ii) successful supervision of research trainees, (iii) publications from their own group (typically as first- or last-author), (iv) publications with their trainees
### Step 3. Identify timeline for 24wk of research

#### (A) 24wk of research

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<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Report due</td>
<td>Defence</td>
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<tr>
<td>Application</td>
<td>FT Research (16wk)</td>
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<td>FT Research (8wk)</td>
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#### (B) 24wk of research

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<th>Year 3</th>
<th>Year 4</th>
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<tbody>
<tr>
<td></td>
<td>Application</td>
<td>Report due</td>
<td>Defence</td>
</tr>
<tr>
<td></td>
<td>FT Research (16wk)</td>
<td>FT (4wk)</td>
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#### (C) 24wk of research

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<th>Year 1</th>
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<th>Year 3</th>
<th>Year 4</th>
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<tr>
<td></td>
<td>Application</td>
<td>PT Research (~3d/month=4wk)</td>
<td>PT Research (~3d/month=4wk)</td>
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<tr>
<td></td>
<td>FT Research (16wk)</td>
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Report due and Defence times are marked in yellow.
Step 4. Complete research component

- The research must be novel, hypothesis-driven and requires collection of primary data
- Requires a minimum of 24 weeks of research experience
Step 5. Complete presentations/reports

- Oral presentation to fellow MD/STIR students in the format of a “3 minute pitch” at the beginning of the program
- Midterm report submitted by July 1 of the first summer
- Oral presentation to an appropriate group (e.g. lab meeting, group meeting, conference) arranged by the supervisor
- Poster presentation at FoMD Summer Student Research Day or equivalent
Step 6. Submit final written report

- Research manuscript format
  - 10-15 typewritten pages in length (double-spaced) excluding figures, tables and references
- “Student contributions to research” that clearly describes the student’s technical and intellectual contributions to the project
- The supervisor submits a confidential Student Evaluation form
Step 7. Complete oral defence

- 10-minute seminar to the examining committee
- 10-minute question period
- The student is expected to understand the basis and selection of methodologies used, the interpretation of results and the impact of findings
Pros and Cons

- **Pros:**
  - Opportunity to participate in the design and execution of a peer-reviewed research project
  - Time commitment of 24 weeks dedicated to research provides opportunity for student to become a valued member of a research team
  - Opportunity to assess interest and aptitude for research that may influence future career decisions
  - Formative feedback helps student develop skills in critical thinking and communication
  - No risk to enrollment. No indication if the student withdraws from the MD/STIR program.
  - Formal recognition of research training with the notation of “Special Training in Research” on student MD degree parchment and university transcript.

- **Cons:**
  - Time commitment of 24 weeks dedicated to research may be a challenge to students wishing to participate in other UME programs, e.g. extra clinical electives.
Questions?

“Science makes people reach selflessly for truth and objectivity; it teaches people to accept reality, with wonder and admiration.”

—Lise Meitner